

Exercise Solutions for Math 20

Equations in Quadratic Form and with Radicals and Absolute Values

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1 Find the solution set of the following inequalities.

1.1 $\frac{2x+1}{4} \leq \frac{2x}{3} + \frac{1}{6}$

$\Rightarrow \frac{3(2x+1)}{12} \leq \frac{4(2x)}{12} + \frac{2}{12}$	LCM = 12
$\Rightarrow \frac{6x+3}{12} \leq \frac{8x}{12} + \frac{2}{12}$	
$\Rightarrow \frac{6x+3}{12} \leq \frac{8x+2}{12}$	
$\Rightarrow 6x+3 \leq 8x+2$	
$\Rightarrow 3-2 \leq 8x-6x$	
$\Rightarrow 1 \leq 2x$	
$\Rightarrow x \geq \frac{1}{2}$	
$\Rightarrow x \in [\frac{1}{2}, +\infty)$	Final answer. ■

1.2 $-2 < 5 + 3x < 20$

$\Rightarrow -7 < 3x < 15$	Solve for x.
$\Rightarrow -\frac{7}{3} < x < 5$	
$\Rightarrow x \in (-\frac{7}{3}, 5)$	Final answer. ■